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Solar Research Sparks a Pork-Barrel Scramble

With federal funds for major new facilities in short supply in recent years, the once-thriving practice of R&D pork-barrel politics has been subdued for lack of pork.

But now there is a big prize—the Congressionally mandated Solar Energy Research Institute (SERI)—for which a site must be chosen by year's end. And since the parent agency for the proposed institute, the Energy Research and Development Administration (ERDA), has been formally advised to spend \$50 million a year by 1980 on the new creation, the hounds of Capitol Hill are off and running to fetch SERI for their constituents.

Along the way, it might be noted, they have collided with Gerald Ford, who, apparently oblivious of ERDA's commitment to a pristine site-selection ritual, recently told a Colorado audience that SERI is likely to be located in Arizona, New Mexico, or Florida.

The President's inadvertence not only offended Colorado, which is racing along with all the other competitors, but provoked a pained letter from Senators Kennedy and Brooke to ERDA Administrator Robert Seamans, "requesting an assurance that neither you nor the President has reached even the most preliminary conclusion on possible sites. . ." The Kennedy-Brooke letter, dated August 27, had, as of this writing, drawn no more than a promise of "prompt attention" from ERDA's Congressional relations office.

All this, of course, is welcome sustenance for the long-deprived aficionados of scientific pork-barrel strife, who have had little to feast upon since the Johnson-era eruption over the location of the Fermi Accelerator Laboratory, which, in defiance of all expectations and good sense, was deposited at Batavia, Ill. The main virtue of that bleak and improbable site was that it lay in the barony of then-Senate Minority Leader Dirksen, whose support Johnson needed for his Great Society fantasies. If that episode and other classics of the genre are any guide, the only certainties are: (1) technical merit will run second to political advantage in site selection, and (2) the rhetorical barrages are just beginning.

SERI's genesis goes back to the Solar Energy Research, Development, and Demonstration Act of 1974, which, with the grudging approval of the Administration, directed, among many other things, that ERDA establish such an institute and obtain the advice

of the National Academy of Sciences on its role and scale.

The Academy responded by setting up a SERI Committee, chaired by Richard L. Garwin, an IBM scientific superstar on whom the statesmen of science often rely for sound judgment when big things are at stake. (It was a Garwin study for the old White House Office of Science and Technology that helped bring the SST to its crashlanding on Capitol Hill).

Garwin's committee, which is yet to complete its work, submitted an interim report last May, the thrust of which was that SERI should be a big, single-location operation with responsibility for research on every aspect of solar energy, from "genetic improvement of plants" to such "nuts-and-bolts problems as corrosion

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In Brief

Like women's lib never happened, Cabot Corporation President Robert Charpie, in his capacity as a member of the National Science Board, has responded to Senator Kennedy's interest in encouraging careers for women in science with a letter that includes the following: "A young woman may drop out of a career in science to raise a family. This represents a lowered return on the investment made by society in her education, and a demand for a substitute only shortly after she began her career."

Public Health and private health: While controversy continues over the therapeutic value of Vitamin C, it is interesting to note that one of the federal government's most senior health officials daily pops the stuff himself and has his children doing the same. So far, however, he is publicly silent on the health merits of the substance.

In the realm of the incredible: The Food and Drug Administration has just gotten around to recommending the use of protective shields for the reproductive organs of children and persons of child-bearing age during x-ray examinations. An FDA press release states, "Although there has been virtually no active opposition to the use of the shields, various studies, including the 1970 X-Ray Exposure Study conducted by the US Public Health Service, indicate that shields are rarely used in practice."

"Choice of Location... Not Linked to Climate or Weather"

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of steel or aluminum by contact with hot water."

Apparently in response to suggestions that SERI could be created at a bargain price by tacking a new sign on an existing federal laboratory, the Garwin study showed a strong preference for starting fresh. "A disadvantage to locating 'at' an existing facility," the interim report states, "is the somewhat increased difficulty of making a clean start, so that the mission of SERI is unambiguously solar energy and not to some extent a continuation of the interests of the pre-existing laboratory."

"Nevertheless, we believe that pre-existing laboratories should in no sense be barred from having SERI as a neighbor or, for that matter, becoming SERI. But we do not believe that SERI can be given as an additional mission to an existing laboratory."

(Apart from the problems of creating this particular new organization, the Committee's reservations about the feasibility of assigning new roles to old labs is an interesting commentary on that durable problem. With rare exception, even after the purposes for which they were created have long expired, established laboratories, to the despair of political budget authorities, simply carry on, seemingly unresponsive to new needs. One reason is that the science advisors upon whom politicians depend doubt the ability of old labs to do new research, but don't like to recommend dismantling of anything scientific. The result is, as in the case of SERI, preference for starting new, rather than retreading an existing facility).

Of prime importance to states that are so unfortunate as to experience substantial amounts of cloudiness, the Garwin committee stated, "The choice of location need not be linked to climate or weather because much of the work of SERI will involve the use of analysis and physical and analytical simulation to supplement and even replace experiment and hence will be independent of weather, season, and time of day." Noting that distant field stations could be established for certain needs, the report concluded that "Geographical location (of the main laboratory) is not so important as the environment as regards intellectual atmosphere, tech-

nical suppliers, and services to a laboratory of substantial size. Good communications and transportation should be available to ease interchange between SERI, universities, industry, ERDA laboratories, and other government organizations."

New England, of course, likes to think of itself as the nation's premier region for these criteria; hence, its pooled efforts to campaign for a site and the deep concern of Senators Kennedy and Brooke when Mr. Ford bumbled out that line about Arizona, New Mexico, or Florida.

As for costs, which were not specified in the SERI legislation, the Garwin committee opted for big-league status by stating, "We are considering a SERI of size connoted by a \$50-million annual operating budget, to be reached by about 1980." ERDA need not accept that figure, but it has come to be accepted as the number to be, and is the lure for all those panting Congressional delegations. Many are quietly working behind the scenes, but others have gone public. Prominent among the activists is the Arizona delegation, which includes in its armory a special issue of the slick periodical *Arizona Highways*, devoted to the virtues of that state as the site for SERI.

ERDA's timetable calls for a final report by the Garwin committee anyway now. Late October is to be the deadline for submitting proposals; then, according to ERDA, "the site selection process will be initiated in early November. If all goes according to schedule, the Solar Energy Research Institute should be in operation by early 1976."—DSG

Former Nature Editor To Head Nuffield Foundation

John Maddox, former Editor of *Nature*, has been appointed Director of the Nuffield Foundation, a British philanthropic foundation which disburses about \$4 million a year for scientific research, scholarships and educational innovation. Maddox, who left *Nature* in 1973, has been writing and broadcasting for the past two years, and his latest Book, *Beyond the Energy Crisis*, was published in Britain earlier this year.

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GAO Report Backs Defense Research Funding

A major assault, long promised by Congressional budget cutters, on a complex and little-publicized arrangement by which the Department of Defense and NASA fund nearly \$1 billion worth of research and development in private corporations each year, has been put off at least until next year's budget deliberations.

Known as Independent Research and Development (IR&D) funding, the arrangement was attacked two years ago by Senator William Proxmire (D-Wisc.), who termed it a "backdoor subsidy" to the defense industry, and attempted to delete at least 50 per cent of IR&D funds from the FY 1974 defense budget. However, in response to a request from Sen. Thomas McIntyre (D-N.H.), chairman of the Senate Armed Services subcommittee on research and development, Proxmire agreed to defer his attack, pending the results of a thorough review of the matter by the General Accounting Office (SGR Vol. III No. 18).

The study was originally expected to be ready in time for the FY 1975 budget debate, but it has only recently been published—too late for Proxmire to challenge the funds in either the FY 1975 or 1976 budgets. The study, however, generally supports IR&D funding, and its tardy appearance has helped defuse some of the opposition.

IR&D funding, and a related item known as Bid and Proposal (B&P) funding, is an arrangement which enables defense contractors to charge off to the Department of Defense (DoD) a substantial part of their own research and development budgets, even though the research may have no direct relevance to a particular government contract.

The idea is that R&D funding helps defense contractors to keep abreast of technological developments outside the immediate scope of their present contracts, so that they will be in a competitive position to bid for future contracts. DoD and the aerospace industry regard IR&D as a normal part of doing business, the costs of which would, in a commercial firm, be added to product prices.

Similarly, B&P costs - which are the costs incurred in preparing bids for government and non-government contracts - are paid for as overheads on government contracts since they would also be recouped by a commercial enterprise through market prices.

But the arrangement has come under increasing scrutiny in recent years, chiefly because the cost of IR&D to DoD has increased from \$325 million in 1963 to about \$808 million last year. NASA, which operates a similar IR&D program, supports about \$85 million of IR&D and B&P work.

The matter came to a head when Proxmire offered his amendment to the FY 1974 military authorizations bill. Noting that the IR&D payments cost more than the entire budget of the National Science Foundation or the National Cancer Institute, Proxmire charged that the program helps maintain the dominance of a few defense contractors and suggested that perhaps the funds ought to be deleted entirely.

The GAO study of the matter, which was published recently, concluded that IR&D funding is "in the Nation's best interest to promote competition, advance technology, and foster economic growth," and recommended that the arrangement should be continued. The GAO report suggested, however, that the ground rules should be tightened a little to ensure that IR&D work is more closely tied to the functions of the agency which provides the support.

GAO said that it had found only one instance in which DoD allowed "questionable" projects to be charged off as IR&D, however, and that there's little evidence that the arrangement is being used directly to increase the profitability of defense contractors.

The aerospace industry, naturally, concurs with GAO's general findings. In a study published last year, the Aerospace Industries Association of America, the Electronic Industries Association and the National Security Association, jointly claimed that IR&D is an essential ingredient in maintaining the technological leadership of the American defense industry.

The industry's report is a classic piece of *laissez-faire* doctrine from a vested interest. Among other things, it states that "the forces of competition coupled with existing regulations and policies provide sufficient control over IR&D and B&P to preclude the need for legislation in this area." It also argues that "excessive regulations can result in . . . a deterioration of the US competitive position in world trade," and concludes that "the position that the USSR faces today of not being able to manufacture products that are competitive in the world markets . . . has been brought about by excessive government control of their manufacturing technology and know-how. If we allow the same policy to be followed by the USA with respect to IR&D in government procurement, then the best that we can hope for is the same non-competitive position of the USSR producers."

Be that as it may, the long delay in carrying through Proxmire's assault on IR&D, coupled with GAO's general support of the concept, should protect the arrangement from being decimated when DoD's budget comes before Congress next year. —CN

Medals of Science: Balm for Nixon-Era Wounds

The Ford Administration has used the National Medal of Science this year as a kind of Purple Heart to recompense the scientific community for wounds inflicted upon it by the Nixon Gang.

The medal, deemed the highest award of its kind in the federal government's inventory of prizes, has never really caught on as a major honor, since it is usually bestowed in the mass, is unaccompanied by any financial sweetener, and, in recent years, has sometimes gone unbestowed at all.

Nevertheless, it is officially the big prize that government holds out to science, and on September 18, Mr. Ford squeezed it for maximum symbolism to signal his Administration's distaste for the paranoia that his predecessor manifested toward the profession of science.

The result was a long and congenial afternoon of ceremonials that tended to obscure the fact that though science is out of the dog house, it is still a long way from influence in the White House or the budgetary support that it claims as urgently necessary.

The medals, for which there were 13 recipients this time, were handed out by Mr. Ford at a noon ceremony in the White House. The highpoint, of course, was the inclusion of Linus Pauling, the double Nobel Laureate (chemistry and peace), whom the Nixon people are reported to have twice blackballed for the award. Pauling's brand of political activism—picketing against nuclear tests and petitioning against U.S. foreign policy a decade ago—was sufficiently out front in bygone days to convince the Nixonites that he represented a serious threat to their tenure, and therefore did not merit presidential recognition.

Mr. Ford, who is realistically relaxed about such matters, seized the opportunity to honor Pauling, among the others, and to say kind words about the value of scientific knowledge and the need to heal old wounds. The recipients, it might be added, were selected by a committee of scientists staffed by the National Science Foundation, and, presumably, the White House did not meddle in the process this time. But if the awards this year signalled that bygone dissent is forgiven, they did not signal that dissidents on contemporary issues are in vogue. The winners are all fine scientists or technologists, but none of them is a thorn in anybody's side on present-day hot issues.

Mr. Ford used the awards ceremony to proclaim his Administration's strong support of research, noting that federal R&D funds for civilian purposes have been increased by 12 per cent this year. The audience, numbering about 200, included many who realized that the figure, at best, represents a standstill situation. But

What's in a Research Title?

Research performed by the latest batch of National Medal of Science winners has provided supporters of the National Science Foundation with ammunition to use against recent attacks on research projects with trivial or humorous titles.

Rep. James Symington (D-Mo.), chairman of the House subcommittee on Science, Research and Technology, has noted that some of the research projects carried out by the awardees "may be faintly reminiscent of the kinds of research derisively questioned on the floor of this House on the basis of titles alone."

Nevertheless, he noted, the studies have ultimately contributed so much to scientific research that they have been recognized with the nation's top scientific award.

Symington pointed out that James Shannon's early work included such investigations as "The excretion of urine in the dog," which eventually led to information on the function of the human kidney and the role of hormones in kidney functions. Among James Neel's published research are studies such as "Concerning the Inheritance of Red Hair," and investigations of the blood, urine and stools of Xavante Indians. And one of Linus Pauling's early papers concerned "The Coordination Theory of the Structure of Ironic Crystals."

"I believe that we should express our gratitude here for the work done, but remind ourselves that science and technology projects, like books, should not be judged alone by their titles," Symington stated.

goodwill permeated the proceedings, and there was no audible response to this cosmetic treatment of the realities of federal R&D money.

Following the White House ceremony, the proceedings were continued at the State Department, where Vice President Rockefeller spoke at a luncheon. Mr. Rockefeller wisecracked his way through a staff-written speech that he indicated was too solemn for the occasion. The audience was in a mood to be pleased, and though his jokes were fairly limp, a passerby might have thought that Bob Hope in his prime was on deck.

For the touch of seriousness that must be applied in such talks, Mr. Rockefeller noted that he had had a

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Games President's Play: R&D Spending— Up or Down?

Though Mr. Ford boasted to the Medal of Science audience of a 12 per cent annual increase in federal support for civilian research and development, that figure tells little about the financial realities and trends of government-financed R&D.

The essential facts, as contained in a newly issued report by the National Science Foundation (NSF 75-321, available without charge from NSF, Division of Science Resources Studies, 1800 G St. Nw., Washington, DC 20550) are as follows:

Overall federal spending for R&D has indeed been on the upswing over the past two years—from \$17.4 billion in fiscal 1974, to \$18.9 billion in 1975, and \$21.7 billion in the present fiscal year. The percentage increases—8.4 in 1975 and 14.5 in 1976—are the largest in the past

decade. Now for the bad news, in NSF's own words.

"The chief impetus to growth in 1976 is derived from programs related to defense and space. The R&D total in the 1976 budget is the first in the 1966-76 decade that reflects a greater relative increase for the defense/space component than for the civilian component. In spite of a sizable rise for energy programs, the civilian portion of the Federal R&D total shows a growth rate in 1976 well below that of 1974 or 1975, whereas the defense/space component registers the highest relative increase for any year in the 1966-76 period."

Going into finer detail, the NSF report states that "In 1976 basic research funding is expected to grow 3.6 per cent to \$2.7 billion"—which means, of course, that purchasing power is down quite a bit, depending on how the inflationary factor is calculated. Applied research, totaling \$5.6 billion, is up by 8 per cent, and development, \$13.4 billion, by 20.1 per cent, leading NSF to observe that "only the development increase is of sufficient size to allow for expanded performance in real terms. The applied research increase will represent a leveling off, but the basic research increase will be more than offset by inflation."

As for where all the new money is going, the answer is the bulk of it is earmarked for the Department of Defense, NASA, and the Energy Research and Development Administration, with DoD getting the biggest piece—two-thirds of the growth, for a DoD grand total of more than \$1.7 billion. This sum amounts to 49 per cent of federal spending on R&D.

Among the other details that Mr. Ford neglected to

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Federal obligations for research and development, by agency: fiscal years 1974-76

(Dollars in millions)

Agency	Actual		Estimates	
	1974	1975	1976	
Total	\$17,438.2	\$18,905.1	\$21,651.9	
Department of Defense	8,420.4	8,859.5	10,635.3	
National Aeronautics and Space Administration	3,002.2	3,065.3	3,430.7	
Energy Research and Development Administration	1,488.9	1,906.5	2,382.7	
Department of Health, Education, and Welfare	2,290.1	2,403.7	2,325.8	
National Science Foundation	556.4	620.5	678.3	
Department of Agriculture	378.7	423.4	463.1	
Department of Transportation	369.8	370.4	402.1	
Department of the Interior	196.6	305.1	335.0	
Environmental Protection Agency	169.2	286.6	300.4	
Department of Commerce	180.6	210.1	229.8	
Other agencies	385.3	454.0	468.7	

MEDALS *(Continued from Page 4)*

major role in working out the details of the President's decision to re-establish a White House science office. To which he added that both houses of Congress passed the bill embodying this proposal and that the differences would soon be resolved in conference. The fact is that the neither house has yet completed committee work on the proposal. A staff man went scurrying to the speaker's table to whisper to another staff man immediately following the Vice President's remark on the matter, but nothing more was said on the subject.

Pauling, cherubic, vigorous and fully active in research at age 74, was cited for "the extraordinary scope and power of his imagination, which has led to basic contributions in such diverse fields as structural chemistry and the nature of chemical bonding, molecular biology, immunology, and the nature of genetic disease."

In view of this assessment by his peers, it will be interesting to see whether NIH will at last come across with some money to support research on his controversial ideas concerning the health effects of Vitamin C. He was turned down once, but another application is currently under review.

In addition to Pauling, the Medal of Science recipients this year are: Nicholaas Bloembergen, Britton Chance, Erwin Chargaff, Paul J. Flory, William A. Fowler, Kurt Godel, Rudolph Kompfer, James Van Gundia Neel, Ralph B. Peck, Kenneth S. Pitzer, James Augustine Shannon, and Abel Wolman.

The Medal of Science was first awarded in 1962 and then annually until 1970, when the Nixon Administration let three years pass before another award was made—in the final year of Nixon's presidency, a time when he was grasping at every opportunity to acquire public support.

Scientists Say US, USSR in Phone-Tap Deal

On the basis of little hard evidence, a lot of suspicion and a long-distance deductive leap, the Federation of American Scientists (FAS) has publicly charged that there may be "a tacit agreement between American and Soviet intelligence communities" which enables the Soviets to intercept private telephone conversations in the United States, and the Americans to do likewise in the Soviet Union.

The charge is based on the assumption that the Administration is making no attempt to jam monitoring equipment, said to be located on the roof of the Soviet embassy in Washington, which may be used to pick up microwave transmissions of some long-distance telephone calls to and from Washington. According to electronics experts, it would be easy to jam such equipment simply by beaming signals at it from close by.

The first public disclosure that Soviet intelligence agents are listening in to private telephone calls in the United States was contained in the Rockefeller Commission's report on the CIA, which stated that "the communist countries . . . appear to have developed electronic collection of intelligence to an extraordinary

degree of technology and sophistication for use in the United States and elsewhere throughout the world, and we believe that these countries can monitor and record thousands of private telephone conversations."

Although the Rockefeller Commission didn't go into specifics, it was widely reported that it was concerned about the Soviet's ability to monitor microwave transmissions of telephone calls within the United States. Most domestic long-distance telephone calls are now transmitted as microwaves between towers typically 25 to 50 miles apart, and the signals can be picked up by antennae close to the towers. The signals can be sifted with the help of computers and those with potential intelligence value recorded. The National Security Agency is reportedly doing the same thing in the Soviet Union and in other countries.

After newspaper accounts revealed that the eavesdropping is being conducted with antennae on the embassy roof (a recent story in *Newsweek* also reported that there are "at least five listening posts across the country") FAS Director Jeremy J. Stone sent a letter to Attorney General Edward Levi asking whether there are any legal impediments to jamming the monitoring equipment. Stone also asked whether "the explanation for Administration attitude (is) our apprehension that Soviet jamming in response would disrupt comparable operations of our own in intercepting Soviet microwave transmissions?"

The Justice Department, through the FBI, has a legal responsibility to guard against foreign intelligence operations within the United States, but the response to Stone's letter was so vacuous that it simply raised FAS's suspicions. The response, which took two months to compile, was a three-paragraph statement signed by Assistant Attorney General Richard L. Thornburgh, suggesting that "the Department of Justice cannot make a final determination as to the specific course of action in a matter this complex, nor would it be appropriate for me to express opinions publicly regarding a problem so sensitive."

The letter then went on to state that "essentially, the Government's course of action must be determined on a national policy level" - a suggestion which Stone interpreted as revealing that the Justice Department does not consider Soviet telephone eavesdropping as simple espionage, and he fired off a press release charging that there may be a tacit agreement to avoid a jamming war.

Though the FAS press release does not mention it specifically, the organization is also concerned about the possibility that the monitoring technology will filter from the intelligence community into domestic agencies, such as the FBI, for use in crime control and domestic surveillance operations.

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mention are the following: Basic research support hit a high in 1967, but in terms of purchasing power dropped 16 per cent below that figure last year; R&D funding in universities will drop next year by 2.8 per cent, which is the first drop in that category since 1970.

The fiscal picture is thus considerably less rosy than is suggested by Mr. Ford's use of a single statistic.

Other items of interest are contained in the accompanying tables, taken from the NSF report.

Distribution of Federal R&D obligations to the 10 States leading in such support in 1974 for fiscal years 1965, 1969, 1973, and 1974

State	1965	1969	1973	1974
Total, all States	\$14,357	\$15,355	\$16,486	\$16,991
(Millions of dollars)				
	Percent distribution			
California	31.7%	27.9%	23.3%	24.0%
Maryland	6.1	6.3	8.7	9.0
Massachusetts	5.1	5.0	5.8	7.0
New York	9.0	7.2	5.7	6.0
Florida	3.2	5.8	5.8	4.6
Pennsylvania	3.7	4.0	3.8	3.9
Texas	5.1	4.5	3.9	3.8
Washington	1.5	2.5	3.4	3.8
Virginia	2.0	1.9	3.4	3.8
Ohio	2.6	2.8	2.9	3.3
All other States	30.0	32.0	33.3	30.8

Conlan Submits Bill to Tighten Control on NSF

A bill which would radically alter the manner in which the National Science Foundation (NSF) disburses grants to the academic community has been drafted by Rep. John B. Conlan, a right-wing Republican from Arizona who has recently assumed the mantle of NSF's chief Congressional tormentor. He is expected to introduce the measure into the House by early October and a companion bill will be introduced into the Senate by Jesse Helms (R-N.C.).

Though the measure stands little chance of wending its way intact through the relevant Congressional committees, Conlan will be busy in the next few months drumming up support for his proposals from scientists who are disaffected with NSF's present granting mechanisms, and from his Congressional allies who were critical of NSF earlier this year.

A late draft of the measure, which has been obtained by SGR, would lay down rigid guidelines for peer review of NSF grant proposals, set up an independent appeals mechanism to adjudicate grievances from grant applicants, assure that signed copies of peer review reports are provided to applicants and to members of Congress who request them, and subject each grant proposal to a "needs assessment" to ensure that the research has potential application.

Proceeding from a statement of findings which reads like a bill of indictment against NSF for high crimes against the research community, the bill states that the chief purpose is to "establish procedures whereby all grant proposals submitted to the National Science Foundation shall receive a thorough, objective, and fair peer review evaluation."

The preamble notes that "serious charges have been made regarding the value and need of many NSF projects supported by the American taxpayer" and that "many experimental programs promoted by NSF for use in the Nation's public elementary and secondary schools allegedly subvert proven teaching methods and are designed to restructure children's ethical, moral, and social values, much to the distress, apprehension, and anger of the American people."

All of which is fairly familiar stuff to those who have been following Conlan's prolonged fight with NSF officials over the Foundation's support of such innovative curricula as the MACOS program and the ISIS program (SGR Vol. V, Nos. 11, 14, and 16). But the bill breaks new ground with a proposal to establish within NSF a Peer Review Office to administer and keep track of the agency's entire review process.

Aside from keeping a log of the progress of each grant application submitted to NSF, the office would ensure that proposals are reviewed by at least five re-

viewers, including people "representing both the scientific specialty concerned and the ultimate consumers of the research to be undertaken or education program to be developed."

In keeping with Conlan's previous charges that NSF project officers have too much power, the bill would also prohibit NSF officials from selecting more than half of the reviewers of each proposal, the grant applicant would select 20 per cent, and the rest would be selected "if practicable, through random sampling techniques."

Conlan also charges in the preamble to the bill that "the geographic distribution of NSF grant awards shows a consistent pattern of bias in favor of scientists and educators at large academic institutions" - a conclusion which stems from a somewhat distorted reading of NSF's grant distribution figures (SGR Vol. V, No. 14) —and his bill consequently instructs NSF to "establish specific policies and procedures to ensure that the evaluation, administration, and management of Foundation grants do not favor certain scientists, educators, states, or academic institutions through an improper or unfair concentration of awards or peer review participation in the evaluation of NSF grant proposals." Unfortunately, though, the bill doesn't spell out exactly how that should be accomplished for, as NSF itself has noted, its grant distribution now represents a compromise between a state's population and its collection of scientific talent; states which receive more than their fair share of grants on the basis of population generally receive less than their fair share on the basis of criteria of scientific excellence.

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Congress: Bombast But No Curbs on Nuclear Power

So far, the great nuclear power debate that was supposed to take place on Capitol Hill has failed to materialize and, aside from some skirmishing over the budget for the liquid metal fast breeder reactor, Congress has given the nuclear industry pretty much what it asked for, with a minimum of fuss.

Nevertheless, unorchestrated grumblings about nuclear safety and related matters continue in legislative offices, and the Ford Administration is constantly being flayed in speeches and press releases for relying too heavily on the atom for meeting future energy demands.

The latest complaints come from Rep. Morris Udall (D-Ariz.); they deserve more attention than usual since Udall is chairman of a subcommittee which has been delving into the nuclear energy program and, as one of the contenders for the Democratic nomination, his views on controversial political matters may soon have to be taken seriously.

Therefore, let it be noted that, in a speech delivered September 11 to the Third Annual Illinois Energy Conference, Udall announced that the Administration should curb the rush to nuclear power, and suggested that the atom should be only a stop-gap energy source until more acceptable technologies are developed. But he stopped well short of completely espousing the cause of the anti's, suggesting that "an immediate moratorium on nuclear plants would be unwise."

Udall said that his reservations about nuclear power are based on the extensive hearings conducted by his House Interior subcommittee on Energy and the Environment, which have highlighted four problems: "our inability to forecast accurately the economics of plant construction and operation; the dangers of international proliferation and terrorist diversion of weapons-grade nuclear material; the serious problems of hand-

ling radioactive materials and disposing of reactor waste products; and the potential consequences of reactor accidents."

The Administration's non-policy on energy R&D, according to Udall, would result in an electrical growth rate of about 6 percent year, which would require at least \$800 billion in capital investment in new generating plant over the next 10 years - "\$800 billion that won't be available for houses or schools or health care." The only alternative, Udall suggested, is a strong, mandatory conservation program coupled with massive spending on R&D efforts aimed at exploiting solar and geothermal energy.

Though Udall's views are probably shared by a majority of his colleagues on Capitol Hill, there is little chance that they will immediately be implemented. For one thing, Congress has so far shown itself to be incapable of taking the politically unpalatable steps required to force energy conservation. And for another, although Udall's subcommittee can gain some attention with its hearings on energy policy and from the reports which will eventually result from them, it lacks the power to write legislation on energy R&D; that prerogative is retained by the Joint Committee on Atomic Energy and the Committee on Science and Technology.

Udall's pronouncements should therefore be viewed as thoughtful political rhetoric, and in that regard it should be noted that his views mesh quite neatly with the findings of a recent Louis Harris opinion poll which indicated that although 63 percent of the American public favors more nuclear power, the same fraction is concerned about disposal of radioactive wastes, and 49 percent is concerned with the release of radioactivity into the environment.

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